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Ashes to Ashes, Rust to Rust?

The recovery and recycling of orthopaedic implants post-cremation.

Hannah Rumble

Whilst a death necessitates the practical need and ritualised process of sorting through and reorganising the material life of the deceased, many of us probably give little thought to the literal process of sorting through people's post-cremated remains even though, since the 1990s, commercial recycling companies have been doing just that (Resurgam 2012). By focusing on the recovery and recycling of cremated orthopaedic implants in contemporary Britain, the theoretical sequestration of death literature (Giddens 2005[1991], Mellor 1993, Walter 1996) that takes for granted the final 'disposal' of human remains is rendered less valid for corpse disposition practices in the 21st Century. On the contrary, death produces a surplus, wherein the dead body, or parts thereof, are re-valued and re-classified, so that former constituents of a corpse become valuable economic and material resources following the radical breakdown of a bounded body following cremation. Subsequently, the recovery and recycling of orthopaedic implants post-cremation, 'disperses' these metallic remains or residues via processes of sifting, separation and transformation. Originating as part of the corpse, these orthopaedic implants are separated out from cremated human remains to become surplus metallic waste. Subsequently, following an industrial process of metal recycling involving collecting, sorting and smelting, this surplus metallic waste is then transformed into valuable economic resources, devoid of human identity and materiality. Quite literally then, following cremation and processing for recycling, some of our material remains are sorted out to continually circulate beyond the human, achieving afterlives of their own; not so much 'disposed of', but rather 'dispersed' as metallic residues with economic value.

The Afterlife of Orthopaedic Implants: from disposed ‘remains’ to dispersed ‘metallic residues’

‘Modern’ cremation in Britain – the geographical focus of this chapter - is understood by ‘death studies’ scholars to be a technological innovation that changed the materiality and rituals of death and aligned funerary practices in Britain forever (Davies 2015:131, Davies and Mates 2005, Jupp 2006).¹ Whilst the first modern cremation took place in Britain in 1885 at Woking Crematorium, it was not until 1968 that cremation became more popular than burial as the normative method of disposal in the United Kingdom (UK). Today, 74.77% of all annual deaths in the UK are dealt with via cremation (Davies 2015:131, Cremation Society of Great Britain 2016). In addition to the UK’s high cremation rate, the number of people undergoing operations to receive orthopaedic implants is expected to rise year on year (Hoeyer: 2009). In 2014 alone, 708,311 primary hip replacements and 772,818 primary knee replacement procedures were recorded in the UK’s National Joint Registry’s 12th Annual Report (2015). Hip replacements are one of the most common forms of elective surgery in developed nations (Hoeyer 2009:242 citing Merx *et al.* 2003), whilst Total Hip Replacements (THRs) became a “major business” from the 1980s and represent a “key feature of modern medicine” (Anderson *et al.* 2007:146-7). Subsequently, a significant number of cremated corpses contain these orthopaedic implants (e.g. titanium hips, cobalt-chrome knee joints and steel pins), which become visible and recoverable following cremation.

¹ The open-air cremations of early history have been replaced by ‘modern’ crematoria in which cremations take place in purpose-built closed equipment, hidden from view in specialist buildings and operated by professional staff. There are usually several cremators so that cremations can take place simultaneously catering to the demands of the urban communities they usually serve (Davies and Mates 2005). See Michael Arnold’s chapter in this volume for more detail on the contemporary ‘modern’ process of cremation.

In Britain, until very recently, the metal by-products of cremation were sorted out from human or other animal cremated remains ('ash'²) both manually and using magnets and then buried in the grounds of crematoria. This was the common practice until 2004, when the Institute of Cemetery and Crematorium Management (ICCM), who preside over the professional management, training and commercial interests of British burial and cremation authorities, began working in partnership with a Dutch company (OrthoMetals) to recover and recycle these metal objects post cremation. Certainly, the titanium makes it profitable to recycle titanium metal hips (prostheses). These prostheses can be disentangled from a corpse post cremation as the titanium does not melt at the 900-1100 Celsius temperatures required for cremating a corpse. Since the titanium endures high temperatures crematoria staff have always had to do something with the metal pieces lying among the ashes post cremation. Therefore, post-cremated medical implants, especially prostheses, create a waste disposal issue for crematoria; not least because the number of implants has been increasing over the last few decades (Hoeyer 2009:251).

The ICCM now have over 50% of their crematoria supplying the Dutch company, OrthoMetals, who recycle "more than 250 tons of metal from cremations annually" (Resurgam 2012:6). OrthoMetals was founded in 1997 offering, in their terms, 'orthopaedic implant recycling' after a chance discussion between a metals recycling expert, Rudd Verberne, and an orthopaedic surgeon, Jan Gabriëls, in 1987 when they discussed what became of old prosthesis (Boyd and Hugh-Jones 2012). In 1992 they began in earnest to make plans to co-found the company in order to recycle medical implants.

² A euphemism used to refer to the human remains that result from the process of modern cremation. 'Cremains' is another term used for these remains that is often used by American-English speakers; an abbreviated expression and euphemism referring to 'cremated remains' and a neologism invented by the American funeral industry (Davies and Mates 2005:131). 'Ashes' or 'cremains' are uniformly powered from the remains of the cremation process by using a 'cremulator', which is a grinding system for burnt bone fragments (Davies and Mates 2005:152).

OrthoMetals now collects metal ‘waste’ from over 700 crematoria in twenty countries worldwide: the UK, United States, Canada, Greenland, Iceland, Norway, Finland, Denmark, Netherlands, Germany, Poland, Czech Republic, France, Belgium, Spain, Italy, Australia and New Zealand.³ Moreover, in the United States there are other companies, in addition to OrthoMetals, offering a similar service; such as Progressive Environmental.⁴

The metal objects rendered recoverable by their very exposure following the cremation process, are gathered together by crematorium staff and placed in OrthoMetals custom wheelie⁵ bins awaiting pre-arranged collection by OrthoMetals. At this stage, crematoria receive no money in exchange. The only benefit to crematorium staff is that OrthoMetals free collection means they do not have to deal with disposing this metallic ‘waste’.

Once OrthoMetals have collected and then subsequently deposited the contents of these wheelie bins onto conveyer belts back at their recycling plant in the Netherlands, the assortment of charred metal objects is sorted into the following categories:

1. Non-ferrous metals - Medical implants
2. Irons / ferrous metals - Nails, staples, urns
3. Bronze – Name plaques, urns and other memorialisation objects
4. Pacemakers (These are explanted from corpses prior to cremation and then sterilised)
5. Zamac, brass, iron or a combination of these - Coffin handles and grips
6. ‘Precious’ metals (gold, silver, palladium, titanium) – Jewellery, dental fillings and some orthopaedic implants

³ See an interactive map of the countries that OrthoMetals currently operates in, at: <http://orthometals.com/orthometals-worldwide/> [Accessed 04/12/17].

⁴ <http://www.progressive-environmental.com/why.html> [Accessed 04/12/17].

⁵ This is the vernacular term used in the UK for rubbish or trash bins on wheels.

What is important to note here is the brief historical moment which is making OrthoMetals operation possible, but one wonders to what extent they have considered the impact of ever-changing possibilities posed by biomedical and/or technological developments that may well see biological replacements for all metallic orthopaedic implants. In the future orthopaedic surgeons may well turn to stem cell paste grafts to regrow surfaces on arthritic hips and knees, for example, rather than rely on metal prostheses. Presumably then, OrthoMetals will no longer have a ready supply of non-ferrous and precious metals to recover and recycle post cremation, at a time when even the materials used for coffin and urn construction are changing as suppliers use an ever-expanding variety of organic, biodegradable materials, such as cardboard, wicker and jute.

Ultimately, we may find that the ICCM's charitable donations to death-related causes distributed via individual British crematoria subsequently becoming a brief historical legacy of metal implant recycling as the materials used in urns, coffins and implants begins to change. However, for the time being, the ICCM's Recycling of Metals scheme, in partnership with OrthoMetals, has now donated more than £1 million to death-related charities; a huge increase from the first collection by OrthoMetals in 2005/6 that yielded a return of £14,993.⁶ It is following OrthoMetals processes of sorting and smelting these non-renewable metal residues that, via being sold onto manufacturing industries, financial profits (or 'surplus') are made. The sale of these various metals following the smelting process generates financial surplus, from what was previously the metal by-products and surplus of cremation; itself a transformative, technological process used to manage the material surplus of death itself (i.e. corpses). Some of the financial surplus that OrthoMetals generates is then re-distributed back among crematoria via the cremation authority of each country through which OrthoMetals operates, *but only* once OrthoMetals have deducted their operating costs.

⁶ See 'Press Release Recycling of Metals passes the £1m mark for donations' at: <http://www.iccm-uk.com/iccm/library/Press%20Release.pdf> [Accessed 05/12/17]

Betwixt and between cremated ‘persons’ and ‘things’

Given that orthopaedic implants, whether cremated or not, are betwixt and between ‘subject’ and ‘object’ - “too human to be sold but not human enough to follow the remains of the deceased into the urn” (Hoeyer 2009:253) - they nevertheless, *do* enter various forms of exchange to generate financial surplus (profit).

The official, public-facing documents published by the ICCM refer to these cremated objects as ‘metallic residues’ and in so doing, imply they are ‘waste’ by-products of the cremation process. This nomenclature is vital in distancing the orthopaedic implants from any residual subjectivity, so that they can enter economic exchanges that seek to derive further utility from the material(s). Nevertheless, the recovered charred metal objects following cremation *are* ambiguously the remains of dead people *and* a surplus waste product of the cremation process (prior to their removal, transportation to the Netherlands and processing by OrthoMetals). Similarly, ‘waste’ is an ambiguous, “in-between state of re-categorization...in which values transmute but do not disappear” and thus, “designating something as ‘waste’ is not the same as suggesting that it can or should be used ‘for nothing’ or ‘for anything’” (Hoeyer 2009:244). One wonders therefor, to what extent a *no trade dictum* that performs, shapes and formats exchanges of objects thought of as too human to trade (see Hoeyer 2009) operate or influence the circulation of post-cremated metallic constituents of the deceased between crematoria, OrthoMetals and the bereaved? I suspect it does and that is why, in their public-facing documentation, the ICCM and OrthoMetals refer to ‘metallic residues’. However, analytically we might consider orthopaedic implants as Hoeyer (2013:5) suggests, ‘ubjects’, in order to “draw attention to the basic ambiguities surrounding the materials floating through bodies” and beyond them. Ubjects point to temporal relations – having been part of a body/corpse, but no longer – and subsequently they change their status over time moving between

subject and objecthood (Hoeyer 2013:7). That is not to say that all subjects leaving our bodies remain so, many go unnoticed in their exit or extraction and move into unambiguous materiality, but equally, “any object can gain importance from ambiguous associations with subjecthood” (Hoeyer 2013:182).

For this reason, the concept of ‘consent’ becomes paramount in facilitating the process of disentangling, disassociating and detaching orthopaedic and other medical implants from deceased subjects. Consent acts to legitimise orthopaedic implant recovery and recycling, and thus to mitigate any moral anxiety about the distribution of once bodily material and the social relations between OrthoMetals and crematoria in their exchange of ‘metallic residues’. Ultimately, consent does some work towards freeing these subjects to travel in exchange networks and be dispersed widely following cremation.

In Britain, the recent recommendation for consent to recover and recycle medical implants is sought by crematorium staff from the applicant for cremation (the person acting on behalf of the deceased).⁷ In the process of gaining consent, staff emphasise that by consenting to the recovery and recycling of orthopaedic implants following cremation, the consenter is contributing to environmental and social wellbeing by saving land from being used for the burial of cremated metals and facilitating a recycling process that generates monetary surplus for charitable donation. In this way, disposal becomes realigned with recycling, reuse and giving something back; all values and sentiments that are fostered by the mainly secular green or alternative funeral industry (see Harris 2007, Kelly 2015 and West 2010 for example).

As I have already stated, crematorium staff or funeral directors securing “the prior consent of the dead person or of the surviving spouse or next-of-kin” (Resurgam

⁷ See the ICCM’s recommended consent forms for the Disposal of Cremated Remains at: <http://www.iccm-uk.com/iccm/library/RecyclingConsentDisposalCRS.pdf> and Notice of Cremation (Preliminaries) at: <http://www.iccm-uk.com/iccm/library/RecyclingConsentPrelim.pdf> [both accessed 05/12/17]. I wonder if people ever think to bequeath their implants before they actually die, as with organ and tissues donation?

2012:8-9) allows the former metallic constituents of corpses to be released into various exchanges following cremation, thus, freed from any of their residual subjectivity in their re-classification from charred orthopaedic implants (remains) into ‘metallic residues’ or ‘waste’ made available for economic exchange. Indeed, the first step in creating exchange value out of cremated orthopaedic implants is to designate them as ‘waste’, as this is productive in facilitating their very exchange (Hoeyer 2013).

Nevertheless, when the Chief Executive of the ICCM stated in personal correspondence (dated 07/06/12) that “We now have approximately 50% of UK crematoria signed up to the scheme” my first reaction was to wonder why the other 50% of crematoria had not signed up to the recycling scheme? Interestingly, Hoeyer (2009) found similar dissent amongst Danish crematoria. Why were crematoria reticent to sign up for OrthoMetals free collections of post-cremated metal implants given that, according to the ICCM website: “Metals are recycled with the express consent of bereaved families being the persons entitled and empowered to make this decision”.⁸ Moreover:

Authorities in membership of the ICCM Charter for the Bereaved will be required to explain the process of recycling of metals to any enquirer and whenever a member of the public requests an inspection of the crematorium. (ICCM 2004:4)⁹

Considering the long, complex, often ethnocentric cultural history of the use and manipulation of human cadaveric material (see Jones and Whitaker 2009, Lawrence 1998, Richardson 1988), it is hardly surprising that the ICCM are cautious about their public image with regards to their business relationship with OrthoMetals. When orthopaedic implant recycling is occasionally featured in the news, often tales of body snatching, and the appropriation of gold teeth are quick to surface.

⁸ From <http://www.iccm-uk.com/iccm/index.php?pagename=recyclingmetal> [accessed 04/12/17]

⁹ A copy of the document from which this quote is taken, is available as a pdf at <http://www.iccm-uk.com/iccm/library/RecyclingPackJune04.pdf> [accessed 04/12/17]

Betwixt and Between Commercial Trade and Not-For-Profit Exchange

Headlines such as ‘OrthoMetals recycle cremated metal body parts for road signs’ (Daily Telegraph 2013) and ‘Scots Crematoriums cashing in by recycling and selling metal remains including fillings and hip replacements’ (Daily Record 2015, see also Daily Mail 2011) only serve to highlight the cultural revulsion and fear towards the notion of trade, commercial or otherwise, in cadavers and their constituent materials. Subsequently, the culturally-bound notions of consent and charitable donation are drawn upon to legitimise the commercial relationship between the ICCM and OrthoMetals and allay concerns within the funeral industry. In the trade journal (Resurgam) for the UK’s Federation of Burial and Cremation Authorities for example, in order for the recovery and recycling of orthopaedic implants and other metallic residues “to be acceptable”:

...the prior consent of the dead person or of the surviving spouse or next-of-kin is required. The fact that what is recovered is prosthesis and not ‘human remains’ is also relevant. It makes the process more likely to be seen as ethical, as does giving some of the profits to charity (Resurgam 2012:8-9).

Here a number of cultural values are articulated to justify and legitimate the travel of these recovered materials beyond crematoria (informed consent, the *no trade dictum* of human remains, and the notion that charitable giving is ethical); cultural values that the historian Susan Lawrence argues emerged in Western cultures in the twentieth century “shaped by beliefs in democratic government, a service-capitalism economy, and secularly defined law and moral codes” (1998:112).

Unsurprisingly then, the ICCM’s Scheme for the Recycling of Metals Following Cremation describes the trade and movement of these materials in non-profit making terms:

Any monies raised from the recycling process will be paid to the ICCM, who will offset the operating costs and supervise the re-distribution of the income to a range of charities working in areas that relate, in some way, to death and bereavement...the scheme will operate at no cost to authorities

and should any income be raised in excess of essential operating costs, the net profits from the scheme will go to charitable institutions. (ICCM 2004:4)

Subsequently, the recovery, exchange and recycling of metals from cremated remains is ethically endorsed because net profits are distributed as death-related charitable donations,¹⁰ further legitimising the exchange between crematoria and OrthoMetals (see also Hoeyer 2009). But, perhaps more significantly and persuasively, reference to ‘profit’ is deliberately avoided; referring instead to ‘offset’ or ‘compensate’ (i.e. ‘reimburse’) crematoria and OrthoMetals’ running costs, whilst any subsequent financial surplus is donated to charity; itself derived from an additional “income stream” from the sale of titanium (see Resurgam 2012:8).

Though functioning as ‘compensation’ in a not-for-profit’ economy, this type of money [from the recycling of orthopaedic and other medical implants] does generate surplus. However...care is taken to make it appear different from commercial trade and this care sets the conditions for the exchange system. (Hoeyer 2009:253)

The ICCM has a designated page on its website documenting the funds raised through the scheme and listing the nationwide charitable donations,¹¹ as well as a public-facing document that outlines the recovery and recycling scheme for crematoria staff and the public.¹² This web content is intended to reassure both industry employees and the general public that the ICCM is not pursuing commercial gain from the services offered by OrthoMetals or acting as “hip snatchers” as one newspaper was reported to claim (Resurgam 2012:8).

In a Danish study of bone banks (see Hoeyer 2009, 2013), compensation was similarly found to be an acceptable economic transfer, but not profit; so that monetary connotations aligned with sale, profit or gain are avoided by those professionals involved in these kinds of exchanges arising from post-mortem

¹⁰ Typically, children’s hospices and cancer research See: <http://www.iccm-uk.com/iccm/index.php?pagename=recyclingmetal> [Accessed 05/12/17]. I do wonder if some of the charity donations offered by the ICCM and/or individual crematoria are not always welcome by the charity recipient; it would certainly be an interesting issue to focus on if empirical research were undertaken.

¹¹ See <http://www.iccm-uk.com/iccm/index.php?pagename=recyclingmetal> [Accessed 04/12/17]

¹² See <http://www.iccm-uk.com/iccm/index.php?pagename=recyclingmetal> [accessed 04/12/17]

recycling. Whether one is trading in cremated metal implants or in human bone, the way these circulate beyond a dead body is by deliberately not referring to buying and selling in the way one would understand these terms in relation to the ideology of the free market, but by referring to selling in a way that implies helping others (see Hoeyer 2009:248); hence the repeated stress on net profits being distributed by individual crematoriums to local charitable causes. OrthoMetals and crematoria speak of receiving compensation in a not-for-profit- economy that *does* generate monetary surplus, but considerable “care is taken to make it appear different from commercial trade and this care sets the conditions for the exchange system” (Hoeyer 2009:253).¹³ The ‘We Care’ mission statement that OrthoMetals have written on their website illustrates the point Hoeyer (2009) is making here:

After deduction of our costs, most of the proceeds are returned to the crematoria by OrthoMetals. We encourage crematoria to support (local) charity with the money they receive from recycling metals remaining after cremation. The proceeds can also be distributed on behalf of your crematorium amongst respected charities and institutes we made contact with over the years. Let’s support charity together!¹⁴

So, it is that be it household recycling or the recycling of cremated orthopaedic implants, recycling is understood as a virtuous act in a moral economy of waste that increasingly encompasses the surplus created by our own physical death.

Rethinking Disposal: From finality to process

In Britain, the media, funeral industry and death and dying campaigners are encouraging citizens to consider choosing more environmentally-sustainable funerary practices and products so that the materiality of death becomes recycled, reused, dispersed, recomposed; all idiomatically referred to as going ‘back to nature’ (Davies and Rumble 2012, Harris 2007, Kelly 2015, Plumwood 2008, Weinrich and Speyer 2003 and West 2010). Across the Anglo-American death care

¹³ For a wider critical discussion about the commodification of bodies and/or body parts see: Baudrillard (1998) and Sharp (2000) for example.

¹⁴ OrthoMetals ‘We Care’. Available at: <http://orthometals.com/we-care/> [Accessed 04/12/17].

and funeral industry, technological disposition innovations and professional services are embracing the rhetoric and principles of environmental sustainability and social wellbeing (Harris 2007, Kelly 2015, Weinrich and Speyer 2003, West 2010). Whilst not generally recognised, the social, symbolic and material value of our dead bodies is regularly harnessed in disposal processes by funeral industry innovators; for example, heat recapture technology allows crematoria to re-use heat generated by the cremation process (see Rumble *et al.* 2014) and decomposition is romanticised and/or idealised as fecund in design innovations that seek to utilise our decomposing corpses for environmental and social enrichment (See Kelly 2015, Plumwood 1993 & 2008, Lee 2011 and Spade 2015). The ‘mushroom suit’ in Lee’s (2011) Infinity Burial Project and Spade’s notion of ‘recomposition’ in her Urban Death Project both embrace a material and symbolic re-envisioning of the relationship between corpses and the environment, which celebrates human corpse decomposition as “natural and nutritive” (Olson 2015:13). A number of disposition technologies are based on reusing, recycling, harvesting or composting our dead bodies for environmental, social and monetary gain. And hence, OrthoMetals public-facing aims – that they recycle, reassure and care – reflects relatively recent values promulgated by innovations and practices in the wider Anglo-American funerary landscape, as well as contemporary waste management habits, such as domestic recycling and composting, which are framed as virtuous practices with obligations to particular moral codes attached (Hawkins 2005).

Within these contemporary moral economies concerning ‘waste’, cremation is no longer simply about the disposing of human corpses. Rather, it has become a carefully managed process of reuse (Rumble *et al.* 2014), be it heat or orthopaedic implants and other metallic components of the corpse and coffin. Although it should be stressed that it is not just the sequestration of death and the corpse that is becoming outdated, even the materials remaining after confined corpses are cremated may be quite different before long. Nonetheless, for the foreseeable future, even recently conceived disposition technologies such as alkaline-

hydrolysis, promession and the Urban Death Project valorise the reuse of human remains for the good of society and/or the environment, be it as compost, fertiliser, heat or as a source of titanium and other non-renewable metals (See Hoeyer 2013:121, Olson 2015a&b, Rumble *et al.* 2014). It would seem that the cultural notion of final bodily *disposal*, which is very much aligned with the sequestration of death discourse associated with nineteenth-century cemeteries and twentieth-century cremation, is becoming outdated. For many of the corpse disposition technologies we are seeing in the 21st century and subsequent exchange networks that entail sorting and sifting through our mortal remains, result in the materiality of death being re-appropriated by, and dispersed among, the living rather than disposed of *per se*. Up until now, in Western Europe and North America at least, our ‘necro-waste’ has been sequestered in cemeteries and crematoria; hidden from view and spatially separated from the world of the living, and hence, also from consumption and production (Olson 2015a:12). Today, however, we are a corpse divided when it comes to managing the matter of human death; our ‘necro-waste’ (Olson 2015a) is both made and unmade as our material (and digital) post-death residues are reduced, transformed, sifted through and separated out into other resources, products, waste and remains.

Sorting Things Out (With Care)

The ICCM and OrthoMetals, in managing the matter produced by cremation, make a categorical distinction that separates orthopaedic implants from metallic residues. Metallic residues semantically reposition formerly metal components of the human body as lacking any subjecthood by being completely divorced from the human body and, therefore, acceptable to recover and recycle in economic exchanges. In contrast, as I have already argued, orthopaedic implants, are, by their very label, not entirely removed from what was once their close relationship within the human body. However, if metallic residues were completely devoid of subjecthood and not part of the human body, then why are OrthoMetals so keen

to state that they offer “complete and respectful recycling”? What is meant by this? How can recycling be complete or incomplete and what makes recycling respectful? I want to suggest that it is because a moral economy of care is absolutely necessary for the recovery and recycling process, because the orthopaedic implants are ambiguous as they go through a process of re-categorization imposed by their hybrid ontology (See Cussins 1996); betwixt and between ‘things’ and ‘persons’. It is precisely because orthopaedic implants (following the cremation process when they are recovered from cremated remains and later collected and sorted) are ambiguous object-subject hybrids that OrthoMetals articulate ‘respectful recycling’ as paramount to their service. ‘Respectful recycling’ infers an ambiguous connection between orthopaedic implants and human cremated remains during a recovery and recycling process, which, on the contrary, in its outcome seeks complete, unambiguous physical and ontological separation between them. Again, it is the ambiguity imposed by the subject-object hybrid – Hoeyer’s (2013) ‘object’ - that leads to the ICCM and Federation of Burial and Cremation Authorities emphasising in their publications about orthopaedic implant recycling that metal implants are *recycled* into something else rather than *re-used* in another human or other animal. They are keen to make this distinction because, until orthopaedic implants are transformed into unambiguous metal materials with economic value following OrthoMetals recycling process, heat-damaged orthopaedic implants recovered from cremation are still ambiguously connected to dead human remains. Care then, like consent and compensation, allows these objects to enter exchanges and be transformed from orthopaedic implants into metal resources precisely because these concepts are framed by cultural imaginaries that serve to legitimise OrthoMetals services. Similarly, the ICCM rhetorically position ‘care’ as having:

Monetary value (making charitable donations),

Environmental value (saving land from the burial of metal remains and the extraction of non-renewable resources used to produce medical implants),

Social value (supporting charitable activities) and,

Material value (recycling that allows further utility and avoids ‘waste’).

These care imaginaries are enlisted by the ICCM to encourage British crematoria to sign up to OrthoMetals service. Nevertheless, ultimately, how these cremated medical implants are regulated and disposed of depends on how they are identified (see point 8 in the ICCMs report 2004:12), but as I have been arguing, classification appears to be difficult to determine precisely because these metal residues have the status of “being betwixt and between human and commodity” (Hoeyer 2009:253):

The statute law with regard to the use or possession of a body after death concerns tissue and organs, rather than medical devices such as implants.¹⁵ The issue which arises from the common law rules is the extent to which an implant is a part of the body, and hence may not be the subject of property rights after death, or whether it is separate from the body...Section 1(3) of the Anatomy Act 1984, for example, defines a “body” as “the body of a deceased person” without any qualification in relation to implants. (ICCM report 2004:14)

Afterward / Afterlives

For the time being, OrthoMetals is just one company in existence demonstrating that the hybrid composition of human and other animal corpses have considerable economic and utilitarian value that long outlives each mortal biography. In Western cultural history we have observed changing attitudes, beliefs and uses towards corpses and the viable organs and tissues of the newly and long-dead. We are currently experiencing cultural shifts (and conflicts) arising from biomedical and technological health innovations involving the recovery, storage and use of minute parts of our bodies (Lawrence 1998:113). Within this context, “it is naïve to imagine that exchanges will simply cease just because they are criticized for commodifying the body” (Hoeyer 2009:255). The recovery and recycling of

¹⁵ Referring to the: Human Tissue Act 1961, Anatomy Act 1984, Human Organ Transplants Act 1989.

medical implants post cremation is a lesser-known contemporary example of the widening repertoire of cadaveric materials being put into economic circulation on a global scale. So, whilst the possibilities for the use of human tissue retrieved after a person's death are extensive and expanding, so too are the possibilities for the retrieval of 'inorganic' components from a cremated human or other animal corpse (see Funeral Service Journal 2012 & Vrielink nd). Ultimately, many things in - or intimately linked to - our dead bodies outlast us, including pace makers, titanium hips, cobalt-chrome knee joints and other metal implants. Who knows what future materials might occupy our physical bodies and, for that matter, how long the materials that have been the focus of this chapter's discussion will continue to be present in our cremated remains? Indeed, all the past, present and future materials, exposed and made accessible by a range of bodily disposition methods, are not necessarily disposed of, but rather collected, sifted, sorted and processed (in this case, smelted) to continually circulate and be dispersed beyond our biological mortality, to achieve afterlives of their own, and thus, avoiding their ultimate disposal; which for orthopaedic implants in Britain until thirteen years ago, was as ashes to ashes, rust to rust.

4,967 words (inc. footnotes, sans references)

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